

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended). A process ~~Process~~ for the anionic polymerization of lactams, comprising in which:

(a) dissolving (i) a catalyst capable of creating a lactamate and (ii) a regulator chosen from the amides of formula R1-NH-CO-R2, in which R1 can be substituted with a radical R3-CO-NH- or R3-O- and in which R1, R2 and R3 denote an aryl, alkyl or cycloalkyl radical, ~~are dissolved in the~~ molten lactam; the temperature of ~~this~~ the resultant reaction solution mixture being between the melting point of the lactam and 15°C higher than the melting point of the lactam,

(b) introducing the solution from step (a) ~~is introduced~~ into a mixing device or mold and is then heating said solution ~~heated~~ to a temperature which is sufficient to obtain bulk polymerization of the lactam in no more than 15 minutes.

Claim 2 (currently amended). A process ~~Process~~ according to Claim 1, further comprising also introducing in which molten lactam not containing the mixture of catalyst and regulator ~~is also introduced~~ in step (b).

Claim 3 (currently amended). A process ~~Process~~ according to Claim 14 ~~1~~, in which the polymerization of the lactam is carried out in the presence of one or more polymers (A) which are introduced either into the solution (a) or into the mixing device in step (b) or into the molten lactam which is added in addition to that originating from (a) or according to any combination of these possibilities.

Claim 4 (currently amended). A process ~~Process~~ according to Claim 14 ~~1~~, in which the polymerization of the lactam is carried out in the presence of one or more fillers which are introduced either into the solution (a) or into the mixing device in step (b) or into the molten lactam which is added in addition to that originating from (a) or according to any combination of these possibilities.

Claim 5 (currently amended). A process according to claim 1, wherein ~~Process for the anionic polymerization of lactams, in which:~~

~~(a) — (i) a catalyst capable of creating a lactamate and (ii) a regulator chosen from the amides of formula R1-NH-CO-R2, in which R1 can be substituted with a radical R3-CO-NH- or R3-O- and in which R1, R2 and R3 denote an aryl, alkyl or cycloalkyl radical, are dissolved in the molten lactam; the temperature of this reaction mixture being between the melting point of the lactam and 15°C higher,~~

~~(b1) — the solution from step (a) is introduced into a mold~~ mould and is then heated to a temperature which is sufficient to obtain bulk polymerization of the lactam in no more than 15 minutes.

Claim 6 (currently amended). A process ~~Process~~ according to Claim 5, in which molten lactam containing neither catalyst nor regulator is added in step ~~(b)~~ (b1) in addition to the solution from step (a) and this molten lactam is optionally mixed in line with that obtained from step (a) before introduction in the mould.

Claim 7 (currently amended). A process ~~Process~~ according to Claim 5, in which the polymerization of the lactam is carried out in the presence of one or more polymers (A) which are introduced either into the solution from step (a) or into the mould or into the molten lactam which is added in addition to that originating from (a) or alternatively during the in-line mixing of the lactam originating from (a) and of the lactam added in addition to that originating from (a) or a combination of all these possibilities.

Claim 8 (currently amended). A process ~~Process~~ according to Claim 5, in which the polymerization of the lactam is carried out in the presence of one or more fillers which are introduced either into the solution from step (a) or into the mould or into the molten lactam which is added in addition to that originating from step (a) or alternatively during the in-line mixing of the lactam originating from (a) and of the lactam added in addition to that originating from (a) or a combination of all these possibilities.

Claim 9 (currently amended). A process ~~Process~~ according to Claim 5, in which the catalyst is chosen from sodium, potassium, alkali metal hydrides and hydroxides, and alkali metal alkoxides, ~~such as sodium methoxide, and or sodium~~ ethoxide.

Claim 10 (currently amended). A process ~~Process~~ according to Claim 5, in which the regulator is chosen from acetanilide, benzanilide, N-methylacetamide, N-ethylacetamide, N-methylformamide, (4-ethoxyphenyl)-acetamide, ~~and alkylenebisamides, such as~~ ethylenebis-stearamide (EBS) and ethylenebisoleamide.

Claim 11 (currently amended). A process ~~Process~~ according to Claim 5, in which the ratio of the catalyst to the regulator, in moles, is between 0.5 and 2 ~~and preferably between 0.8 and 1.2~~; the number of moles of regulator being expressed as the number of moles of amide groups.

Claim 12 (currently amended). A process ~~Process~~ according to Claim 5, in which the proportion of catalyst in the lactam in step (b) ~~(b1)~~ is between 0.1 mol and 5 mol per 100 mol of lactam ~~and preferably between 0.3 and 1.5~~.

Claim 13 (currently amended). A process ~~Process~~ according to Claim 5, in which the lactam is lauryllactam, the temperature of step (a) is between 155 and 180°C ~~and preferably between 160 and 170°C~~, and the temperature of step (b) ~~or (b1)~~ is between 200 and 350°C ~~and preferably between 230 and 300°C~~.

Claim 14 (New). A process according to claim 1, wherein the solution from step (a) is introduced into a mold.

Claim 15 (New). A process according to Claim 1, wherein said catalyst is chosen from sodium, potassium, alkali metal hydrides, alkali metal hydroxides, and alkali metal alkoxides.

Claim 16 (New). A process according to Claim 1, wherein said regulator is chosen from acetanilide, benzanilide, N-methylacetamide, N-ethylacetamide, N-methylformamide, (4-ethoxyphenyl)-acetamide and alkylenebisamides.

Claim 17 (New). A process according to Claim 1, wherein the ratio of the catalyst to the regulator, in moles, is between 0.5 and 2 , wherein the number of moles of regulator is expressed as the number of moles of amide groups.

Claim 18 (New). A process according to Claim 1, wherein the proportion of catalyst in the lactam in step (b) is between 0.1 mol and 5 mol per 100 mol of lactam.

Claim 19 (New). A process according to Claim 1, wherein the lactam is lauryllactam, the temperature of step (a) is between 155 and 180°C, and the temperature of step (b) is between 200 and 350°C.

Claim 20 (New). A process according to Claim 1, wherein the ratio of the catalyst to the regulator, in moles, is between 0.8 and 1.2 , wherein the number of moles of regulator is expressed as the number of moles of amide groups.

Claim 21 (New). A process according to Claim 1, wherein the proportion of catalyst in the lactam in step (b) is between 0.3 mol and 1.5 mol per 100 mol of lactam.

Claim 22 (New). A process according to Claim 1, wherein the lactam is lauryllactam, the temperature of step (a) is between 160 and 170°C, and the temperature of step (b) is between 230 and 300°C.